

**REMARKS**

Claims 1-7 have been cancelled, without prejudice.

New claims 8-19 also particularly point out and distinctly claim subject matter regarded as the invention.

The amendments here presented are made for the purposes of better defining the invention, rather than to overcome the rejections for patentability. Support for the amendments herein presented can be found in the specification and claims as filed. No new matter has been introduced as a result of the amendments. Reconsideration and allowance is respectfully requested in view of the amendments and the following remarks.

**The 35 U.S.C. § 112 Rejection**

Claims 6 and 7 stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement. Allegedly the claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor at the time the application was filed, had possession of the claimed invention. This objection is respectfully traversed.

In the Office Action at paper number 20031110, asserts that the recited “secondary granular diameter of from about 101 to about 150 nm” does not have support in the originally filed specification and thus is new matter. The mixture of the recited particle size is not disclosed. The Applicants respectfully disagree with the assertion in the Office Action.

Claims 6 and 7 have been canceled, thus the rejection is now moot.

**The 35 U.S.C. § 112 Rejection**

Claim 5 stood rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. This objection is respectfully traversed.

In the Office Action at paper number 2, third paragraph, asserts that the recited properties are indefinite in not specifying a particular film thickness since said properties are dependent on said film thickness. For example, the thinner the film, the lower haze value. Applicants respectfully disagree with the assertions in the Office Action.

There are two separate requirements set forth in 35 U.S.C. § 112, second paragraph. (A) the claims must set forth the subject matter that applicants regard as their invention; and (B) the claims must particularly point out and distinctly define the meets and bounds of the subject matter that will be protected by the patent grant. The first requirement is dependent upon what the applicants for a patent regard as their invention. The second requirement is evaluated in the context of whether the scope of the claims is clear to a hypothetical person possessing the ordinary level of skill in the pertinent art. If a rejection is based on 35 U.S.C. § 112, second paragraph, the examiner should further explain whether the rejection is based on indefiniteness or on the failure to claim what applicants regard as their invention. *Ex parte Ionescu*, 222 USPQ 537 (Bd. App. 1984).

A claim may not be rejected solely because of the type of language used to define the subject matter for which patent protection is sought. *In re Swunehart*, 160 USPQ 226 (CCPA 1971).

Claim 5 has been canceled, however, the subject matter of claim 5 is contained in new claim 12.

The elements of Claim 12 are clearly taught in the specification at page 3, third and fourth paragraphs, page 4, fourth paragraph and the paragraph bridging pages 4 and 5, page 7, first paragraph, at page 13, last paragraph and at page 14 the first and second paragraphs. Additionally, in the conductive film technical field, the haze value does not so vary that the variation is recognized. The disclosure provides sufficient teaching such that the scope of the claim is clear to one possessing ordinary skill in the art.

#### The 35 U.S.C. § 102 Rejection

Claims 1-5 were rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yukinobu et al (U.S. Patent No.

6,261,479). Claims 1, 2, 4 and 5 stood rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Sato et al (U.S. Patent No. 5,204,177). Claims 1, 2, 4 and 5 stood rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Murouchi et al (U.S. Patent No. 5,504,133). Claims 1, 2, 4 and 5 were rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Nishihara et al (U.S. Patent No. 5,518,810). Claims 1, 2, 4 and 5 were rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Tamai et al (U.S. Patent No. 2002/0051879). The rejections are traversed.

The Office Action asserted in the Office Action dated June 19, 2003 that Yukinobu et al teach the instant transparent conductive film of claim 5 in comparative example 2 and table 1. Also, examples 5, 6 and 11 of said table 1 meet the instant claim 4. Said film inherently possesses mesh-shaped openings since the composition of said film of Yukinobu et al is the same as in the instant invention, a resin and ITO particle having a particle size of 0.03  $\mu\text{m}$  (30 nm). Example 5 teaches the use of colloidal dispersion of example 1 wherein the use of ethanol and diacetone alcohol (col. 14, line 5) which meet the instant solvent is taught. Conductive fine oxide particles having a particle size of 1 nm to 100 nm which encompass the instant particles of claim 3 are taught at col. 7, lines 39-41. Applicants respectfully disagree with the assertions in the Office Action.

The Office Action asserted that Sato et al teach the instant transparent conductive coating composition and a film thereof in example 15, col. 9, lines 59-61 and table 2. Applicants respectfully disagree with the assertions in the Office Action.

The Office Action asserted that Murouchi et al teach the transparent conductive coating composition comprising a polymer, ITO particles having a particle size of 0.05  $\mu\text{m}$  (50 nm) and a film thereof in abstract and table 1 and at col. 3, lines 10-29 and col. 8, lines 53-55. The instant solvents are taught at col. 3, lines 30-42. Applicants respectfully disagree with the assertions in the Office Action.

The Office Action asserted that Nishihara et al teach the instant transparent conductive coating composition and a film thereof in example 5 wherein the use of tetrahydrofuran and dimethylformamide is seen. The instant light transmissivity, ITO particle size and surface resistivity are taught at col. 9, lines 38-64 which inherently yields the instant haze value. Applicants respectfully disagree with the assertions in the Office Action.

The Office Action asserted that Tamai et al teach the instant transparent conductive coating composition and a film thereof in [0077] and table 1 wherein the use of mixed solvents is seen. Films having low haze values in table 1 inherently meet the instant light transmissivity. ATO particles having an average particle size of 20 nm ([0074]) also encompass particles having a size of below 10 nm. Other metal oxides [0034], and an average particle size of 5 to 50 nm [0035] which meets the invention are taught. Various solvents and combination thereof are taught at [0050]-[0051]. Applicants respectfully disagree with the assertions in the Office Action.

Claims 1-5 have been canceled, thus the rejection is now moot. However, the subject matter of originally filed claims 1-5 in addition to new elements have been included in new claims 8-19.

Additionally, to anticipate a claim under 35 U.S.C. § 102, a single source must contain all of the elements of the claim. *Lewmar Marine Inc. v. Barient, Inc.*, 827 F.2d 744, 747, 3 U.S.P.Q.2d 1766, 1768 (Fed. Cir. 1987), cert. denied, 484 U.S. 1007 (1988). Moreover, the single source must disclose all of the claimed elements “arranged as in the claim.” *Structural Rubber Prods. Co. v. Park Rubber Co.*, 749 F.2d 707, 716, 223 U.S.P.Q. 1264, 1271 (Fed. Cir. 1984). To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 180 USPQ 580 (CCPA 1974). All words in a claim must be considered in judging the patentability of that claim against the prior art. *In re Wilson*, 165 USPQ 494, 496 (CCPA 1970).

None of the prior art references cited disclose each and every claimed element. Specifically, none of the prior art references alone or in combination disclose (1) a paint comprising a conductive oxide powder, an easily dispersible low-boiling point solvent of the conductive oxide powder, a difficulty dispersible high-boiling point solvent of the conductive oxide powder, and a binder; and (2) a weight ratio between the easily dispersible low-boiling point solvent of the conductive oxide powder and the difficulty dispersible high-boiling point solvent of the conductive oxide powder is within a range of 95:5 to 60:40, as claimed in part in claim 8.

A paint as claimed in claim 8 can provide a transparent conductive thin film having mesh-shaped openings, which leads to excellent transparency, and excellent conductive paths, in spite of containing a small amount of conductive components.

This is probably attributable to the following mechanism. When a film coat is formed by using the aforementioned paint, the easily dispersible low-boiling point solvent evaporates, which in turn results in the gentle aggregation of the conductive oxide powders into a mesh form. This aggregate, while maintaining the aforementioned mesh structure, is then solidified onto a substrate via the binder with the evaporation of the difficulty dispersible high-boiling point solvent to form the transparent conductive thin film having mesh-shaped openings. At this time, by setting the weight ratio of the easily dispersible low-boiling point solvent to the difficulty dispersible high-boiling point solvent to be within a range between a range between 95 to 5 and 60 to 40, the conductive oxide powders in the aforementioned paint, which assists in forming the aggregation of the conductive oxide powders into a mesh form. As a result, it is possible to form an excellent conductive path, and to achieve an excellent transparency by means of the mesh-shaped openings by using the aforementioned paint including all of the features (1) and (2).

In contrast, the Yukinobu document (US 6,261,479) discloses the use of ethanol and diacetone alcohol (column 14, line 5). However, ethanol is classified as an easily dispersible low-boiling point solvent of the hydrophilic conductive oxide powder and diacetone alcohol is classified as an easily dispersible high-boiling point solvent of the

non-hydrophilic conductive oxide powder. This solvent combination is out of the scope of the feature (1). In addition, the Yukinobu document does not disclose the weight ratio between ethanol and diacetone alcohol. Therefore, the Yukinobu document does not disclose the features (1) and (2).

The Sato document (US 5,204,177) discloses the use of 1:1 mixed solvent of methyl ethyl ketone/toluene in the Example 15. This solvent combination is within the scope of the feature (1). However, the weight ratio between them is 1:1. This is out of the scope of the feature (2). Therefore, the Sato document does not disclose the feature (2).

The Murouchi document (US 5,504,133) discloses a preferable combination of the solvents, specifically the combination between a polar solvent and a non-polar solvent. However, the Murouchi document does not note a boiling point of the solvent. For example, in the example 1, butanol-xylene solvent (butanol/xylene weigh ratio is 4/6) is used. Butanol is classified as a difficulty dispersible high-boiling point solvent of the hydrophobic conductive oxide powder and xylene is classified as a difficulty dispersible high-boiling point solvent of the non-hydrophilic conductive oxide powder. This solvent combination is out of the scope of the feature (1). In addition, the weight ratio between them is 4:6, this is out of the scope of the feature (2). Therefore, the Murouchi document does not disclose the features (1) and (2).

The Nishihara document (US 5,518,810) discloses the use of tetrahydrofuran and dimethylformamide in the Example 5. However, tetrahydrofuran is classified as an easily dispersible low-boiling point solvent of the non-hydrophilic conductive oxide powder, and dimethylformamide is classified as a difficultly dispersible high-boiling point solvent of the hydrophilic conductive oxide powder. Therefore, this combination is out of the scope of the feature (2). In addition, the content of tetrahydrofuran is 12 g and that of dimethylformamide is 5 g. That is, the weight ratio between them is 12:5, which is out of the scope of the feature (2). Therefore, the Nishihara document does not disclose the feature (2).

The Tamai document (US 2002/0051879) discloses the use of a methyl ethyl ketone/toluene/cyclohexanone (1:1:1) in [0077]. Methyl ethyl ketone is classified as an easily dispersible low-boiling point solvent of the non-hydrophilic conductive oxide powder, and toluene and cyclohexanone are classified as a difficulty dispersible high-boiling point solvent of the non-hydrophilic conductive oxide powder in the present invention. This solvent combination is in the scope of the feature (1). However, the weight ratio between them is 1:2. This is out of the scope of the feature (2). Therefore, the Tamai document does not disclose the feature (2).

Since the prior art reference fails to disclose each and every claimed element, then the prior art reference fails to anticipate the claimed invention and the prior art fails to render obvious the claimed invention. In view of the foregoing, it is respectfully requested that the rejection be withdrawn and it is respectfully asserted that the claims are now in condition for allowance.

#### The 35 U.S.C. § 103 Rejection

In the Office Action dated June 19, 2003, the examiner's position is that even a small amount, such as 0.01 wt.%, of a conductive oxide powder having a diameter of no greater than 100 nm would meet the instant invention absent a particular amount thereof. Also, the prior art teaching an average particle size of 30 nm, for example, would encompass particles having a size of 10 nm and 40 nm inherently since said average particle size includes various sizes, smaller or larger. Applicants respectfully disagree with the assertions in the Office Action.

Claims 1-5 have been canceled, thus the rejection is now moot. However, the subject matter of originally filed claims 1-5 in addition to new elements have been included in new claims 8-19.

Additionally to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 180 USPQ 580 (CCPA 1974). All words in a claim must be considered in judging the patentability of that claim against the prior art. *In re Wilson*, 165 USPQ 494, 496 (CCPA 1970).

None of the references teach or suggest a paint for forming a transparent conductive thin film comprising; a conductive oxide powder comprising a primary granular diameter of no greater than 100 nm, an easily dispersible low-boiling point solvent of said conduction oxide powder, a difficulty dispersible high-boiling point solvent of said conductive oxide powder, and a binder, wherein a blending weight ratio of said easily dispersible low-boiling point solvent and said difficultly dispersible high-boiling point solvent is in a range of 95:5 to 60:40, as claimed in claim 8. None of the references teach or suggest a paint for forming a transparent conductive thin film comprising, a conductive oxide powder comprising a primary granular diameter of no greater than 100 nm, at least two types of solvent, and a binder, wherein one of the solvents is an easily dispersible low-boiling point solvent which disperses the conductive oxide powder more easily than any other solvent and has a lower boiling point than any other solvent, and wherein another of the solvents is a difficultly dispersible high-boiling point solvent which disperses the conductive oxide powder less easily than any other solvent and has a higher boiling point than any other solvent, and a weight ration of the easily dispersible low-boiling point solvent to the difficultly dispersible high-boiling point solvent is within a range of 95:5 to 60:40 as claimed in claim 18.

Since none of the cited prior art teach or suggest the claimed invention, then there is no *prima facie* case of obviousness.

In view of the foregoing, it is respectfully asserted that the claims are now in condition for allowance.

#### Dependent Claim

The argument and evidence set forth above is equally applicable here. Since the independent Claim 8 is allowable, then the dependent Claims 9-17 and 19 must also be allowable. If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q. 2d 1596 (Fed. Cir. 1988).



In view of the foregoing, it is respectfully asserted that the claims are now in condition for allowance.


Request for Allowance

It is believed that this Amendment places the above-identified patent application into condition for allowance. Early favorable consideration of this Amendment is earnestly solicited.

If, in the opinion of the Examiner, an interview would expedite the prosecution of this application, the Examiner is invited to call the undersigned attorney at the number indicated below.

Respectfully submitted,  
SIERRA PATENT GROUP, LTD.

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